

10/690,329

1. (CURRENTLY AMENDED) A composite structure comprising:
a plurality of layers of laminate; and
a layer of adhesive located between each adjacent layer of the plurality of layers of laminate;

wherein the adhesive is a composite adhesive which has a plurality of hollow spheres intermixed within the composite adhesive to facilitate improving bonding between adjacent layers of the laminate, and the hollow spheres having a diameter of less than 500 microns.

2. (CURRENTLY AMENDED) The composite structure according to claim 1, wherein the hollow spheres are hollow spheres which are coated with a coupling agent.

3. (ORIGINAL) The composite structure according to claim 2, wherein the coupling agent is a silane coupling agent.

4. (ORIGINAL) The composite structure according to claim 1, wherein the composite structure is a laminated shell which is used for manufacture of one of a percussion instrument and a piece of furniture.

5. (ORIGINAL) The composite structure according to claim 1, wherein the composite structure is a laminated sheet of material which is used for manufacture of at least one component of a string instrument.

6. (CURRENTLY AMENDED) The composite structure according to claim 1, wherein the composite adhesive comprises a mixture of between 1% to 40% of the hollow spheres and 60% to 99% of the adhesive

7. (ORIGINAL) The composite structure according to claim 1, wherein a thickness of the composite adhesive, applied between adjacent layers of the laminate, is between 1 and 20 mils thick.

8. (ORIGINAL) The composite structure according to claim 1, wherein each layer of the plurality of layers of laminate has a thickness of between 0.010 and 0.250 of an inch.

9. (ORIGINAL) The composite structure according to claim 1, wherein the composite structure has between 2 and 20 layers of laminate.

10. (ORIGINAL) The composite structure according to claim 1, wherein at least one the plurality of layers of laminate is a layer of one of a maple laminate, a birch laminate, a poplar laminate, a gum laminate, a bass laminate and a mahogany laminate.

6/27/05 11:21 AM

- 2 -

10/690,329

laminated, a poplar laminate, a gum laminate, a bass laminate and a mahogany laminate.

11. (CURRENTLY AMENDED) A composite structure comprising:

a plurality of layers of laminate with at least one layer being a wood laminate; and

a layer of adhesive located between each adjacent layer of the plurality of layers of laminate;

wherein the adhesive is a colloidal composite adhesive which has a plurality of hollow spheres coated with a trialkoxysilane coupling agent and uniformly intermixed within the composite adhesive to facilitate improving bonding between adjacent layers of the wood laminate, the coated hollow spheres being approximately between 5 and 300 microns in size, and the composite adhesive having a ratio of approximately 60-99% adhesive to 1-40% coated hollow spheres.

12. (CANCELED)

13. (CURRENTLY AMENDED) The composite structure according to claim 11, wherein the silane trialkoxysilane coupling agent is a gamma-aminopropyltriethoxysilane coupling agent comprises from about 0.01% to 20% of a coated hollow sphere formulation while the hollow spheres comprise from about 80% to 99.99% of the coated hollow sphere formulation.

14. (ORIGINAL) The composite structure according to claim 11, wherein the composite structure is a laminated shell which is used for manufacture of one of a percussion instrument and a piece of furniture.

15. (CURRENTLY AMENDED) The composite structure according to claim 11, wherein the composite structure is a laminated sheet of material which is used for manufacture of a least one component of a string instrument comprises a plurality of cellulose based layers and a colloidal dispersion of an interpenetrating network of the plurality of hollow spheres of micron and sub-micron size in a resin matrix.

16. (CURRENTLY AMENDED) The composite structure according to claim 11, wherein the composite adhesive comprises a mixture of between 4% to 40% 3-10% of the hollow spheres and 60% to and 99% 90-97% of the adhesive

10/690,329

18. (ORIGINAL) The composite structure according to claim 11, wherein each layer of the plurality of layers of laminate has a thickness of between 0.010 and 0.250 of an inch.

19. (ORIGINAL) The composite structure according to claim 11, wherein the composite structure has between 2 and 20 layers of laminate and at least one the plurality of layers of laminate is a layer of one of a maple laminate, a birch laminate, a poplar laminate, a gum laminate, a bass laminate and a mahogany laminate.

20. (CURRENTLY AMENDED) A percussion instrument manufactured from a laminated shell in which the laminated shell comprises:

a plurality of layers of wood laminate; and

a layer of adhesive, having a thickness of approximately 7 mils, located between each adjacent layer of the plurality of layers of wood laminate;

wherein the adhesive is a colloidal composite adhesive which has a plurality of hollow spheres, coated with a gamma-aminopropyltriethoxysilane coupling agent and intermixed within the composite adhesive to facilitate improving bonding between adjacent layers of the wood laminate, the coated hollow spheres being approximately between 11 and 88 microns in size, a density of approximately between 0.187 and 0.39 g/cc, a hardness of approximately between 5.5 and 6.0 on the Moh's scale of hardness, and a crush strength of approximately between 10,000 and 15,000 psi, and the composite adhesive having a ratio of approximately 90-97% adhesive to 3-10% coated hollow spheres; and

a drum head being attached to at least one end of the laminated shell to form the percussion instrument.

21. (NEW) The percussion instrument according to claim 20, wherein the percussion instrument has at least one of an improved acoustic resonance, an improved sustained sound, and an improved sound amplitude.